



# The Mountain Ear

The News Source for Nederland, Colorado

Monday's Internet Edition, 02:13 PM, May 19, 2003.

## Nederland could be home of biomass fuel pilot project

By Barbara Lawlor - Nederland

Nederland might become known for more than the Frozen Dead Guy.

All of the players are in place for the creation of a pilot project which would use the stored solar energy of the forest to power our community center. The concept, in fact, is so simple that many of those involved wonder why it hasn't been done before. The idea of using alternative energy for power has been kicked around for years, but last fall, when Nederland Mayor Scott Bruntjen toured the Magnolia Road slash piles left after a thinning project, the idea entered the realm of possibility. And Bruntjen stepped up to the plate.

At that time he contemplated the huge piles of leftover lodgepole pines and envisioned them being used to power the community center. He saw a project that could solve many problems at the same time.

During a recent meeting, the United States Forest Service, the Colorado State Forest Service, the Governor's Office for Energy Management and Conservation, Delta Dynamics, Xcel Energy and the town of Nederland entered into an agreement that would enable the town to purchase a microturbine to burn wood chips to produce electricity that could supply power to the community center and perhaps to many more town facilities in the future.

It would be the first of its kind on the Front Range. It would be the model that other towns would look to in their quest for alternative power.

About four years ago, Philyss Wright of the Nederland Fire Protection District board suggested the town look into alternative energy for the new fire station. But, says Mayor Bruntjen, at that time, "We were way behind the curve, we were too late to design what we thought we should do. We felt bad that we were too late."

Last year, as the forest services began a huge campaign to rid surrounding forests of biomass fuel, the small-diameter trees that constitute a wildfire hazard and are not profitable for sale, Nederland developed a fire mitigation committee. Bruntjen kept seeing the sardined forest as an extremely efficient storage of energy.



Steve Roosa of Delta Dynamics visits the site of the proposed pilot project.

"I would walk past the west wing of the community center and feel the heat radiating from the brick wall and that made me think, and a number of other people began to think and we got together to think about what we could do to use that heat. We looked at the whole cycle of sun, trees, storing energy and the need for energy. Part of our resolution on the Iraq War was to do something about getting rid of our dependence on oil, and nobody seemed against that part of it."

After the bond closing for the NCC, Bruntjen and Trustee Amy Bayless attended the joint agency meeting at the governor's office. They were looking to put money into an alternative energy project, a demo that could use the end product of thinning trees, and they were willing to put money into it.

Also at that meeting were representatives of Delta Dynamics, a company that makes microturbines that use the byproduct of steam. They sought alternate fuels to burn and someone who was willing to demonstrate the equipment.

"We'll do it," said Bayless and Bruntjen. At first no one paid attention. But the two Nederland residents waved their arms, jumped up and down and said, "We'll do it." That day, the governor's office and the USFS committed \$40,000 apiece to help Nederland buy the microturbine from Delta Dynamics. Nederland has to come up with the rest of the money and a site. "We'll do it," Bruntjen said, once again.

Three weeks later, there was a meeting in Nederland with all of the agencies involved with the pilot project. Across the street from the community center, there is a brown metal building, currently used for storage, that is just about perfectly sized to house the unit, which will be capable of producing 30kw, which is the right amount for NCC needs.

The power that is produced could save \$30,000 a year and would use less than a cubic yard of wood chips per hour.

Bruntjen says that if the pilot project is approved, he would like to get the unit size that would provide the heat and power for the renovated NCC, which would cost around \$60,000 to the town, but which they have to spend on a new boiler anyway.

"We should buy one sized for what we need later and grow into it," says Bruntjen. He says a microturbine running full capacity for three days would use up the thinned wood of one residential lot.

Bob Dettman, USFS Rural Development Branch Chief, says the project is a perfect example of their goal of working with communities to protect them from the threat of wildfire through thinning the forest. "To do something with the chips, to use them for power on a community-based basis is what I like about the project. This is the first of its kind in the area. Scott has displayed terrific leadership and vision and has solved multiple problems by utilizing this material."

Dettman says there is a similar program in Walden which turns chips into methane gas that powers lights for an outdoor basketball/ice rink facility. This project will be up and running next month.

The next step for Nederland is to take the project through the process, which Bruntjen says will demand a public hearing, and he and others involved in the project are trying to identify all of the concerns the community might have such as noise, air pollution, traffic or health hazards. The hearing will take place on Tuesday, May 27, at 7 p.m.

"We are trying to examine every outcome so we know the answers to the questions. We want to make it possible for other communities to put this into effect. We'll

measure everything that we can. Our goal is to make this project replicatable.” If the project doesn’t work, we would still have a stored solar energy problem, but we would have a boiler that could be gas fired.

When completed, the site would include a silo next to the brown building which would contain the wood chips. An auger would feed the chips into the fire box, and the boiler and turbine would make electricity. The main by-product would be about one trash bag full of ash a day, which could be used for something, maybe concrete. Each part of the project has been done before—there is no new technology, except for putting all the parts together. On a large scale, cities in Norway and Sweden have utilized this concept, but it hasn’t been done on a small basis.

Susan Castelon, project manager for the pilot program, and representative of the Governor’s Office of Energy Management and Conservation, says she is the quarterback who brings the various agencies to the table. “There are a lot of different players, but everything is moving forward nicely. We have been involved in forest service projects to find sound ways to deal with overgrown forests and Front Range red zones, and this project is an economically and environmentally sound way to use the forest waste products. This is a large, multi-stakeholder project, with many agencies coming together to try it out.”

There are no requirements in the town code about microturbines except there has to be a public hearing prior to issuing a building permit. Bruntjen says he hopes that people will come find out about the project, and most important, will bring their questions and concerns.

“We have to renew our franchise with Xcel Energy in September, so this is a perfect opportunity to talk to them, to consider them our partner. If we had another six-foot snowfall and the chip truck couldn’t get here, we would need a backup.”

If the project is approved at the May 27 meeting, the project could be operating this summer. Bruntjen says he will push to purchase the larger boiler for \$60,000 more with the dual fuel modification that would allow using gas if the project fails. The upgrade would handle all of the center’s needs and the excess power could be sold back to Xcel—another combination of options to be examined if the project is approved. The OEMC has already put a down payment on the larger boiler, and, says Bruntjen, we would need to buy a new boiler anyway when the community center is renovated, and it would be cheaper to buy the big one now than to upgrade later.

Delta sees start of something big

By Barbara Lawlor

Nederland

Steam turbines have been around for 150 years and operate in a pretty simple way. There is a firebox and a boiler that creates steam which runs the blades of the turbine. Throughout history, a vast majority of electricity has been generated by steam. Because steam is safe, there are many industries that use it around flammable products, such as plastics, beer, pharmaceuticals and food.

Steve Roosa, head of marketing for Delta Dynamics, began working with the microturbine company two years ago and says the company took the old steam technology and micro-sized it so it could be deployed in various locations and meet

diverse needs.

“We wanted the equipment to be small. We didn’t want to change the world, but we wanted to create something the size of a washing machine which would enable us to generate 30 kilowatts of electricity per hour to be used at a specific site. Your average home uses three or four kilowatts per hour. The Nederland Community Center uses about 15 kilowatts per hour.”

Roosa says their microturbines are scaleable—one can start out small and add more units to produce more power. Delta is trying to convince industry and commerce to use the little microturbines in an effort to save money and fuel, using steam that already exists.

A hobby forester, Roosa says he loves trees and owns mountain property, but has also experienced the devastation of forest fire.

“I saw what happened last summer and heard the forest service was involved in thinning projects on Winiger Ridge and started looking around to see if there was something we could do with forest fuel. Lighting huge piles of slash on fire is not the right thing to do.”

Roose contacted the Governor’s Office of Energy Management and Conservation and found that it was already talking to the forest service about biomass fuel. He was told that if he had a microturbine that could be hooked to a boiler that used wood chips, the office could work with him.

“I thought it was a good idea and something that could help the community.

Nederland stepped up to the plate immediately, which was great. Mayor Scott Bruntjen and Amy Bayless came to a meeting in Denver with agencies from all over the state. I had talked to people in Gilpin and Jefferson County, but Nederland stole the show, saying they were eager to get into the project and they already had a thinning program.”

Delta sees Nederland’s pilot project as a showcase for their equipment, a demo of the technology and use of biomass fuel. The system will run for three months as a pilot, and will be available for tours to those interested in installing similar systems.

After three months, Delta has committed to helping Nederland with whatever plan they decide to go with. Roosa says his guess is that Nederland will want to go bigger, maybe power the fire station or the water plant with steam created energy.

“We are happy to be involved in this project and are already getting calls from other communities saying they want to be next.”

Roosa explains that the boiler would be contained in the brown building across from the community center. The boiler is about the size of an average room. Fuel would be fed into the boiler from a wood chip pile outside the building. The piles would be kept to a minimal size, involving a couple of dump truck loads of chips per week.

Delta has researched the impact of burning the chips and says they would use only clean wood that have been chipped off the community center site. The sound of the turbine would be equivalent to a noisy pickup truck. It hums, says Roosa, but is not unpleasant. People would hear it, but it is not an annoying sound. There is no smell involved with the project and air pollutants are minimal, he says.

“This solves two problems up here—what to do with the unused wood and how to become fuel efficient.”

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This is an on-line publication of

**The Mountain Ear**

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